



MEMORANDUM
FACILITIES MANAGEMENT
REAL ESTATE SERVICES DIVISION
County of Placer

TO: Honorable Board of Supervisors **DATE:** November 8, 2022
FROM: Steve Newsom, Director of Facilities Management
BY: Eric Findlay, Real Estate Services Manager
SUBJECT: Real Estate Services Division / Draft Remedial Action Plan / Former Lincoln Gun Ranges, 351 Oak Tree Lane, Lincoln, CA

ACTION REQUESTED

Approve a draft Remedial Action Plan for the former Lincoln gun ranges, which proposes remediation to residential cleanup standards with off-site landfill disposal of impacted soil, and authorize the Director of Facilities Management, or designee, to submit the plan to the California Regional Water Quality Control Board, Central Valley Region, for regulatory review and approval.

BACKGROUND

Placer County (County) acquired the 46-acre former Lincoln Missile Site from the Federal Government in 1968. Prior to the property transfer, the Federal Government decommissioned the site. The County later constructed and operated a Gun Range (pistol and rifle) and a skeet range (collectively the Gun Ranges) on the property. The Gun Ranges have been closed since 1999, but the pistol and rifle firing line and earthen berm of the gun range and firing area of the skeet range are still present at the site. Bullet and shot fragments are still present at the Gun Ranges and elevated lead concentrations are present in the soil. Lead is the primary constituent of concern, but other metals and polycyclic aromatic hydrocarbons (PAHs) associated with clay pigeons are present in the soil. The County is responsible for the assessment and remediation of the Gun Ranges. The California Regional Water Quality Control Board (RWQCB) is the lead regulatory agency overseeing the assessment and remediation of the Gun Ranges. The U.S. Army Corps of Engineers is assessing and remediating the impact of the former missile site operation, but this work should not impact County remediation of the Gun Ranges.

After 1999, several environmental engineering consulting firms performed field investigations and sampling to assess the concentrations and extent of lead impact at the Gun Ranges. Based on the results of the multiple assessments, a proposed remediation action implementation plan (Plan) was prepared and submitted to the RWQCB in 2012. The Plan presented a feasibility evaluation of various remediation alternatives for the Gun Ranges, including removal of bullet and shot fragments and encapsulating the impacted soil on-site, or off-site disposal of the impacted soil. The Plan also evaluated remediating the site to residential or commercial cleanup standards. The RWQCB reviewed the original 2012 Plan and requested additional site investigation and a Plan Addendum to consider additional aspects of various remediation alternatives proposed for the site.

The County released a Request for Proposals (RFP) No. 10574 to select a qualified environmental engineering consultant to provide additional assessment of the Gun Ranges, and Provost & Pritchard Consulting Group (P&P) was the firm selected. On March 21, 2017, the Board of Supervisors (Board) approved a Consultant Services Agreement in an amount not-to-exceed \$95,975.00 with P&P, to conduct additional investigation of the site, to assist the County with revising and updating the lead remediation plan, and to prepare the Plan Addendum requested by the RWQCB.

P&P performed the following scope of work:

- Reviewed previous assessment reports and site data, and prepared a work plan for additional field assessment and sampling.
- Collected and analyzed soil samples in the vicinity of both Gun Ranges to evaluate the lateral extent and depth of the lead-impacted soil. Additional sampling was performed at the skeet range for polycyclic aromatic hydrocarbons (PAHs) associated with clay pigeons used in skeet shooting.
- Evaluated the additional data to determine the areas potentially requiring remediation to either commercial cleanup goals or more conservative residential cleanup goals.
- Prepared a Remediation Action Implementation Plan Addendum dated September 6, 2018, presenting the results of the additional investigation, and providing the additional remediation alternatives evaluation requested by the RWQCB.

After a review of the 2018 Plan Addendum, the RWQCB requested additional evaluation of the lead solubility and the potential for using soil stabilization methods either to encapsulate the material on-site or for off-site disposal. P&P performed additional site evaluation and prepared a Remedial Investigation – Feasibility Study (RI-FS) dated December 3, 2021. The RI-FS presented four primary remediation alternatives including cleanup of soil to commercial (320 mg/kg lead) or residential (80 mg/kg lead) standards, and consolidation and containment of the soil on-site or off-site landfill disposal. The RI-FS preliminary cost estimates for each option to remediate the Gun Ranges are presented below:

- Cleanup to commercial standards and consolidate on-site - \$1,288,980.00
- Cleanup to residential standards and consolidate on-site - \$1,431,400.00
- Cleanup to commercial standards and dispose of off-site - \$2,368,430.00
- Cleanup to residential standards and dispose of off-site - \$2,952,730.00

After review of the 2021 RI-FS, the RWQCB requested the submission of a draft Remedial Action Plan presenting the details and additional design of the selected remediation alternative by November 15, 2022.

Remediation of the Gun Ranges to residential cleanup standards is more expensive than commercial standards. Commercial standards would allow higher concentrations of lead and other contaminants to remain in the soil. Residential cleanup standards are more protective of human health and the environment. Cleanup to residential standards would increase the value of the land and provide more flexibility for future use of the property by the County or a future landowner if the property or a portion of the property were to be sold.

Off-site disposal of impacted soil at appropriate landfills is more expensive than consolidation and containment of the impacted soil on-site. On-site containment would require the design of an engineered containment unit. A containment unit would require long-term monitoring of the cap and of groundwater quality. Pursuant to State requirements, consolidation and containment of the soil on-site would require a deed restriction for a portion of the property. A deed restriction would limit the future use or development of that portion of the property and reduce the value of the property.

Staff recommends cleanup to residential standards and off-site disposal of the impacted soil at the preliminary cost of \$2,952,730.00. This remediation alternative will increase the value of the County's 46-acre property, provide more flexibility for future use of the property; and reduce future risk associated with the Gun Ranges. Therefore, staff directed P&P to prepare a draft Remedial Action Plan for Remediation Alternative 1b presented in the RI-FS. This alternative would remediate the Gun Ranges to residential standards (80 mg/kg for lead in soil), and the impacted soil would be stabilized and disposed of offsite at a Class I landfill or a Class II landfill depending on the levels present in the excavated and treated soil.

P&P has prepared a Draft Remedial Action Plan Former Placer County Gun Ranges dated October 18, 2022. The plan presents the following information:

- Limits and depth of area requiring excavation and screening
- Details of stabilizing additive application
- Cleanup goals for lead from bullet fragments and shot, and PAHs from clay pigeon fragments
- Confirmation/stockpile sampling requirements for the remediated areas and disposal material

Staff recommends your Board approve the selected remediation approach, which includes cleanup to residential standards and off-site disposal, by approving the Draft Remedial Action Plan for submittal to the RWQCB. Copies of both the December 3, 2021, Remedial Investigation – Feasibility Study and the September 18, 2022, Draft Remedial Action Plan are on file with the Clerk of the Board.

Once the Draft Remedial Action Plan is finalized and the method of remediation is approved by the RWQCB, staff will work with P&P to refine the estimated cost for remediation. It is anticipated that a future contract for P&P to prepare technical bid specifications for a remediation contractor RFP will be presented for your Board's consideration at a future date as well as a contract with a remediation contractor selected through the RFP process, depending on the availability of future funding.

ENVIRONMENTAL STATUS

This site assessment project is categorically exempt from CEQA pursuant to Section 15306, which provides for the collection of data and resource evaluation that does not result in major disturbance to an environmental resource.

Honorable Board of Supervisors

November 8, 2022

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FISCAL IMPACT

Field investigation and sampling, and report preparation, including the Draft Remedial Action Plan to be submitted to the RWQCB, were included in the P&P contract authorization of \$95,975.00 approved by your Board on March 21, 2017, and funded by Capital Projects Fund (CC12018), Project No. PJ00082 Lincoln Shooting Range Remediation, which has a current balance of \$503,556.00 that can be applied toward future technical bid specification preparation and toward future remediation costs. Once a final Remedial Action Plan is approved by the RWQCB, the preliminary estimated cost for site remediation of \$2,952,730.00 will be refined and the balance of funding required will be requested from your Board at a future date. Facilities Management staffing costs incurred to manage the project are funded in the Real Estate Services Division operating FY 2022-23 Budget (CC12017).

ATTACHMENTS

Attachment A - Former Lincoln Missile Site - Placer County Gun Ranges, 351 Oak Tree Lane, Lincoln, CA

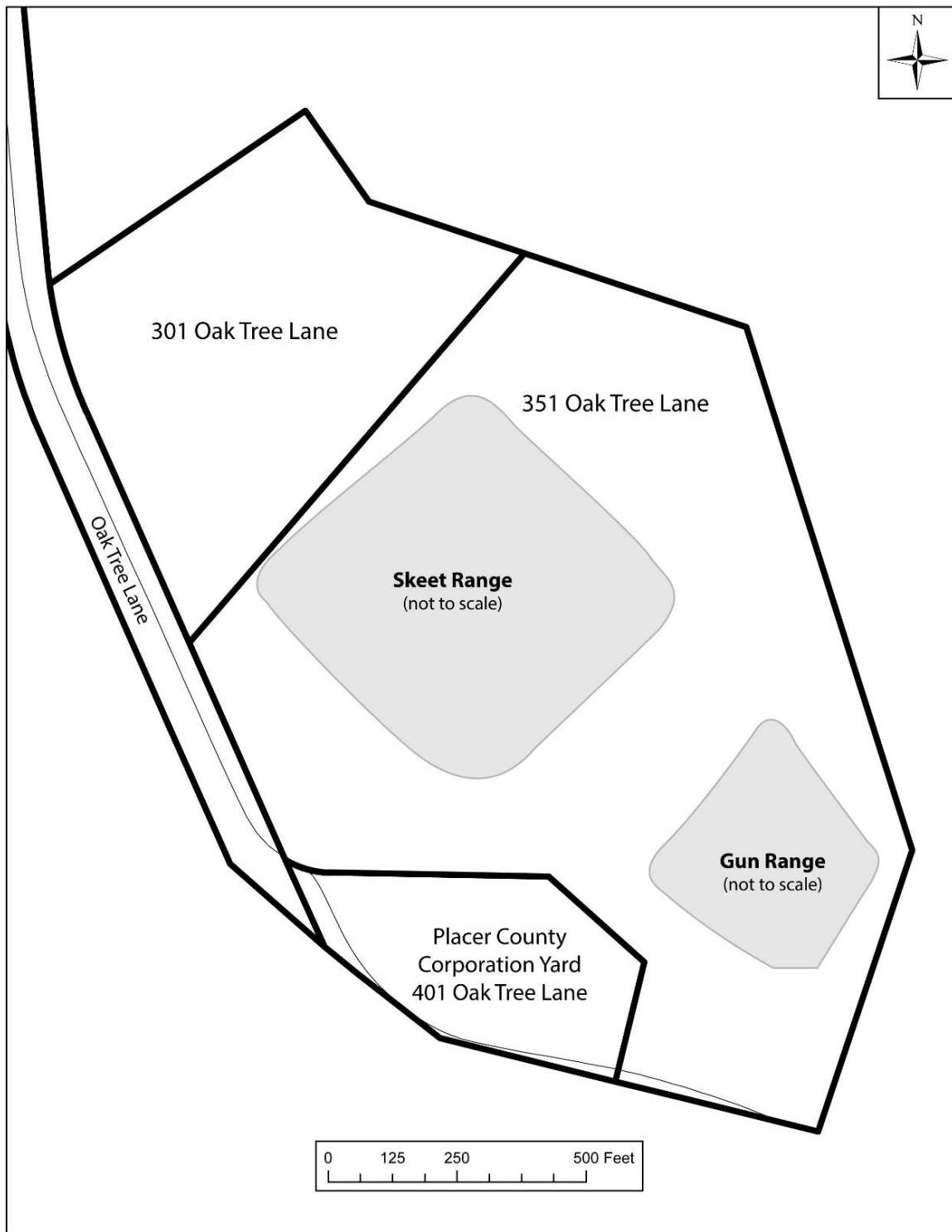
Attachment B - Draft Remedial Action Plan Former Placer County Gun Ranges October 18, 2022

On File with the Clerk of the Board:

Remedial Investigation – Feasibility Study Former Placer County Gun Range December 3, 2021

ATTACHMENT A

Former Lincoln Missile Site Placer County Gun Ranges 351 Oak Tree Lane, Lincoln California



ATTACHMENT B

County of Placer

Draft Remedial Action Plan

**Former Placer County Gun Ranges
351 Oak Tree Lane, Lincoln, California**

October 18, 2022

Prepared for:
Central Valley Regional Water Quality Control Board

Prepared on behalf of:
County of Placer
Department of Facilities Management



Prepared by:
Provost & Pritchard Consulting Group



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Report Prepared for:

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Abbreviations

County	County of Placer
DoD	U.S. Department of Defense
mg/kg	milligrams per kilogram
PAH	polynuclear aromatic hydrocarbon
Provost & Pritchard.....	Provost & Pritchard Consulting Group
RAP	Remedial Action Plan
RCRA.....	Resource Conservation and Recovery Act
RIFS	Remedial Investigation – Feasibility Study
STLC.....	soluble threshold limit concentration
TCLP.....	toxicity characteristic leaching procedure
TTLC	total threshold limit concentration
XRF.....	X-ray fluorescence

1 Introduction

Provost & Pritchard Consulting Group (Provost & Pritchard) has prepared this Remedial Action Plan (RAP) on behalf of the County of Placer (County) for the Former Placer County Gun Ranges (site). The site is located at 351 Oak Tree Lane in Lincoln, California, as identified on the Vicinity Map and Site Plan (Figures 1 and 2). The site is part of approximately 46 fenced acres that were previously owned by the U.S. Department of Defense (DoD). Surrounding property is open land or rural residential. Residential subdivisions have continued to be developed and expanding in the area.

The site was a former Titan 1-A missile facility from 1962 to 1965 for the DoD and associated with Beale Air Force Base. Placer County acquired the former missile facility in 1968 from the DoD and the southwestern portion was used as a corporation yard with associated fuel storage tanks and equipment areas. The County previously removed the underground fuel storage tanks at the corporation yard. East of the corporate yard was the pistol shooting range and north of the yard was the trap and skeet shooting club. The corporation yard is still in use; however, the two shooting ranges have not been used since before 1999.

Several previous studies characterized portions of the near surface soils at the site as containing elevated concentrations of lead and polynuclear aromatic hydrocarbon (PAHs) compounds, as detailed in the Remedial Investigation – Feasibility Study (RIFS) dated December 3, 2021 prepared by Provost & Pritchard. Several cleanup alternatives were evaluated for the site in the RIFS. The alternative selected by the County from the RIFS includes mechanical screening of the soil to remove bullet and shot fragments, pretreatment of the soil with a stabilizing additive, and off-site disposal of some soil to a Class I landfill and the remainder to a Class II landfill. The cleanup goal will be the residential Regional Water Quality Control Board (RWQCB) Environmental Screening Level (ESL): 80 milligrams per kilogram (mg/kg) for lead in soil and varying for the individual PAHs.

2 Impacted Soil Extent

2.1 RIFS Lead Extent Results

The soil analytical data prior to 2017 delineated the approximate boundary of the site that contains surface accumulation of lead shot, clay pigeon fragments, and lead bullets. The earlier Kleinfelder reports, however, show the surface and deeper lead concentrations but do not delineate a boundary based on a cleanup concentration. Surface lead concentrations on both ranges typically vary from non-detected to approximately 600 milligrams per kilogram (mg/kg). The results that exceed about 600 mg/kg are believed in Provost & Pritchard's opinion to have had some small bulk or oxidized lead fragments digested into the analyzed specimen and do not necessarily accurately represent soil lead concentrations. The use of a sieve to remove small lead fragments in 2017 and 2020 during sampling did not result in varying the surface soil shot boundary area. The 2017 sampling did reveal shot in deeper fill soil at sample point 29.

The pre-2017 analytical data collected from deeper soils (3.5 to 4-foot bgs) indicate in nearly all instances that the lead concentrations are less than 10 mg/kg. In one location in the skeet range area (sample point G-21) lead is reported at 110 mg/kg. No older (pre-2017) data are available to assess the depth of affected soil between the surface and 3.5 to 4-foot sampling depths. Hence, the 2017 sampling plan collected and analyzed an intermediate depth sample from between 1 to 1.5-foot bgs in both ranges.

The 2017 assessment sampling points were also placed beyond the earlier data points that had concentrations greater than 82 mg/kg in order to approximate that outer limit boundary line. The locations of these sampling points for the two ranges are shown on Figures 3 through 6 in the RIFS.

The analytical results for the 2017 samples were plotted on the RIFS Figures 3, 3A, and 5, and the 80 mg/kg concentration contour line was sketched on these figures to show the refined boundary lines. The boundary at the skeet range can be estimated from this data. The northwest extent of the affected area of the pistol range is open somewhat but can be accommodated with field screening during soil excavation activities and use of a hand-held X-Ray Fluorescence (XRF) instrument for evaluating in place lead concentrations.

The deeper 2017 samples at the pistol range confirmed that the lead concentrations were less than 80 mg/kg at 1-1.5 feet bgs. Therefore, excavation at that range should be no deeper than one foot. Similarly, at the skeet range, the 2017 deeper sample data were less than 80 mg/kg except for seven sample points, so most of the soil excavation at this range should also be no deeper than one foot. Near to sample points 13 and 29 (and possibly in other localized areas) the deeper soil in these areas contain lead shot and would need to be excavated deeper than one foot until no visible shot remains. An additional excavation depth to two or three feet would also be needed at the other sample locations exceeding 80 mg/kg.

2.2 RIFS PAH Extent Results

The soil analytical data prior to 2017 analyzed a limited number of samples for PAH compounds. The PAH compound benzo (a) pyrene was reported above the residential and industrial ESLs and benzo (a) anthracene reported above residential ESL only at surface sample point G-1. PAH compounds were not above reported limits in the deeper 3.5-4-foot bgs sample. These two compounds were also reported above the residential ESLs in the surface and deeper sample at sample point G-12 and only benzo (a) pyrene was reported above the residential ESL at sample point G-49. PAHs at sample points G-21 and G-51 were below residential ESLs for the surface sample and not detected in the deeper sample.

The 2017 PAH sampling was performed around earlier sample points G-1 and G-49 to assess lateral limits at these two locations. The three surface sample results around sample point G-1 (sample points 16, 17, and 18) and the 1-1.5-foot samples from sample points 16 and 18 reported several PAHs above both industrial/commercial and residential ESLs. The deeper sample at sample point 17 was only above the residential RSL. The 2020 PAH analyses only detected compounds from the surface sample at Test Pit 2. Test Pit 3 surface sample and both deeper 2020 skeet range samples were non detected for PAHs. PAHs were not anticipated at the pistol range, and this was confirmed in the analyzed samples.

2.3 Summary of Previous Results

The analytical results from previous studies were plotted on figures in the RIFS. The 80 mg/kg lead concentration contour line of the surface sample data was sketched on some of these figures to show the limits of the impacts above the residential ESL. Modifications of those figures are included in this report as Figures 3 and 4. PAHs were not detected in the analyzed samples from the pistol range. In the skeet range, surface detections of PAHs above the residential ESL generally fall within the lead impacted area, except for near sample locations 16 and 18. This area, shown in Figure 3, will require excavation specifically for PAHs outside the 80 mg/kg lead limit.

Samples collected below 1-foot bgs at the pistol range confirmed that the lead concentrations were less than 80 mg/kg. At the skeet range, the deeper sample data for lead in the over 100 samples collected through the years were less than 80 mg/kg except for seven sample points: G-21, 3, 13, 14, 23, 29, 32. Five samples collected in the skeet range below 1-foot bgs had PAHs detected above the respective residential ESL: G-12, 16, 17, 18, 29. Areas near these locations, shown on Figure 3, may require more extensive excavation until no visible shot or clay fragments remain, if present.

The 2020 depth specific total threshold limit concentrations (TTLC) and soluble threshold limit concentrations (STLC) testing for lead revealed that soils with elevated lead concentrations were limited to the top 0.3 feet within the shot area of the skeet range. From 0.3 to 1 foot deep in the skeet range and 0 to 1

foot deep in the pistol range area the total lead concentrations are less than 1,000 mg/kg and would not be considered hazardous waste by TTLC when excavated. They were also found to be border line concentrations compared to the STLC and well below the RCRA TCLP concentration in the skeet area.

Due to the limited extent of the 2020 testing, it is uncertain how extensive these conditions are throughout the entire site. The screened stockpiles of soil from 0 to 0.3 feet will require treatment to below the TCLP prior to disposal in a Class I landfill. For the non-screened soil excavated down to one foot deep, stockpiles will be segregated and tested for solubility prior to evaluation of landfill disposal types (Class I or II).

3 Estimated Volumes

In-place cubic yard is the measured volume of the soil in the ground prior to excavation; and can also be referred to as in-situ, in-place or “bank cubic yards”. All further discussions of soil volume in this RAP are “in-place” cubic yards (cy) unless noted otherwise. When the in-place volume is excavated and placed in stockpiles, its volume will increase due to being loosened and dumped into piles with lower bulk density. This expanded volume is referred to as “loose” cubic yards (LCY). This RAP does not try to characterize the degree of “loosening” or density decrease (and volume increase) due to excavation and stockpiling but uses rule of thumb estimates from excavation contractors. The following typical conversion factors are assumed:

- Conversion from in-place cubic yards (cy) to loose cubic yards (LCY, such as stockpiles), multiply in-place cy by a factor of 1.15 (+15% volume increase).
- Conversion from LCY to tons (either may be used for transport and disposal purposes), multiply LCY by a factor of 1.174 (+17.4%).

The 2012 Plan proposed excavating the surface 1-foot of soil from the shot area within the skeet range and processing it to remove lead shot and clay pigeon fragments. The soil material would then be stockpiled for either offsite disposal or onsite consolidation. Also added to the stockpile would be soil excavated to one-foot deep below original grade from beyond the shot area boundary that had lead concentrations above a different commercial/industrial screening level.

The 2017 site assessment and the RIFS used more accurate data to estimate volume needing treatment than the 2012 Plan based on depth-specific testing. Also, the RIFS included more intermediate and shallow sample lead data to help with estimating the different volumes. The combined affected areas (both ranges and berm) requiring excavation and treatment using the residential exposure scenario (80 mg/kg), excavated to one-foot deep results in an estimate of approximately 12,000 cy.

3.1 Skeet Range Volume Estimates

This RIFS proposed two separate excavation depths if offsite disposal was to be chosen by the County in order to segregate materials with elevated lead. The initial excavation will remove the surface soil containing shot and particles and then the deeper lead affected soil areas above cleanup goal. The proposed excavation thicknesses have changed from the original 2012 Plan due to a refined understanding of the thickness of soil affected by shot and particles and the solubility of the lead in the soils from 0.3 to 1 foot deep. The RIFS considered the same initial excavation and mechanical particle separation process for the surface soils in the shot area of the skeet range. However, the RIFS proposed that the shot area initial excavation be only from 0 to 0.3 feet deep as discussed in Section 1.1.1 of the RIFS since the most recent testing indicated this thickness would generally be adequate to remove a large majority of the particle and shot affected soils from this range (soil plus shot and clay fragments). The surface particulate and soil removal process volume within the lead shot area of the skeet range from 0 to 0.3 feet is estimated to generate approximately 2,000 cy. For preliminary cost estimating purposes, it is assumed that 2.5% of this surface excavated volume (or

approximately 50 cy of lead and particles) will be removed/recycled thus reducing total remaining surface soil requiring disposal to approximately 1,950 cy (see summary Table 1 below).

The remaining soils to be excavated within the skeet range includes soils in the shot area from 0.3 to 1 foot deep and the soils beyond the shot area that will be excavated from 0 to 1 foot deep that are in excess of the cleanup goal. The total estimated remaining volume of soil to one foot below existing grade is approximately 5,700 cy using the area with an 80 mg/kg lead goal. The areas and process volumes are summarized on Table 1. Localized areas of deeper excavation (possibly one to two feet) are anticipated as described in Section 2.1 of the RIFS.

Elevated PAHs were generally found in locations that will be excavated to one foot deep along with the elevated lead. PAHs should be excavated around sample points 16, 17, and 18 to approximately 2 feet deep. These additional excavations are assumed to produce less than 30 cy additional excavated soil for mitigation.

3.2 Pistol Range Volume Estimates

The RIFS proposed the same initial excavation and mechanical particle separation of the soils that form the pistol range berm as the original Plan for offsite disposal. The particulate separation process volume for the berm area is estimated at approximately 2,200 cy. For preliminary cost estimating purposes, it is estimated that 5% of the particulate processing volume (or approximately 100 CY) will be removed/recycled thus reducing total disposal volumes (see Table 1). No soil is anticipated to be removed below ground level beneath the berm.

The remaining volume of soil to one foot below existing grade is estimated at approximately 2,100 CY with the 80 mg/kg lead cleanup goal. The areas and volumes are summarized on Table 1. These volumes are *preliminary* estimates and will likely change when actual excavation occurs.

Table 1 Excavation Volume Estimates

Location	Lead Screening Level (mg/kg)	Volume (CY)
Skeet Range • 0-0.3': ~2,000 cy ~50 cy shot & fragments & ~1,950 cy soil • 0.3'-1': ~5,700 cy soil	80	7,700
Pistol Range • 0-1': ~2,100 cy • Berm: ~2,200 cy ~100 cy shot & fragments & ~2,100 cy soil	80	4,300
Total Volume		12,000

4 Pre-Construction Activities

Prior to beginning excavation, the Provost & Pritchard will delineate cleanup areas shown on Figure 3 and 4 with survey stakes or flagging. The sample locations that the cleanup areas are based on will be staked using coordinates collected during sampling. With those stakes in place, the cleanup area will be delineated with different colored stakes or flags.

The Contractor shall ascertain the location of underground utilities, the location of their service laterals or other appurtenances (such as missile silo related in ground developments), and of existing service lateral or appurtenances of any other underground facilities, prior to doing work that may damage any of the facilities or interfere with their service. The Contractor shall mark the site and notify Underground Service Alert for utility underground permits per Section 4216 of the government Code. The Contractor shall obtain identification numbers and certifications required for underground utility locations prior to starting excavation within the project limits of work.

The Contractor shall procure all permits and licenses, pay all charges and fees, and give all notices necessary and incidental to the due and lawful prosecution of the work.

4.1 Health & Safety

In accordance with generally accepted construction practices, the Contractor will be responsible for conditions of the job site, including safety of all persons and property during performance of the work. This requirement will apply continuously and not be limited to normal working hours. The Contractor will provide a copy of its Health and Safety Plan (HASP) to the County at least 48 hours prior to mobilization of equipment to the site.

The HASP will provide policies, information, requirements, and guidelines to be followed while conducting excavation activities, temporary stockpiling/management/storage, handling, and disposal of waste from the site. The HASP will be prepared in accordance with the Federal and State OSHA Hazardous Waste Operations and Emergency Response (HAZWOPER) Standards: 29 CFR 1910.120 and 8 CCR Section 5192.

The HASP will provide for contingencies and be structured to address a variety of situations that may arise but be concise enough so that site workers understand the hazards and are able to follow the procedures to reduce their level of exposure risk. Field personnel shall be required to review the HASP and provide written acknowledgement of their review and understanding of the HASP and willingness to abide by its requirements. In addition, the Contractor will perform a daily tailgate safety meeting held at the beginning of each workday when work is planned for the restricted area to discuss relevant task-specific safety issues. Additionally, daily site visitors to the restricted area will be required to review the HASP and sign the acknowledgement sheet.

5 Remedial Action & Soil Management

5.1 Excavation, Screening, & Treatment

The areas to be excavated are shown on Figure 3 and 4 and include the area of lead shot, approximate 80 mg/kg lead limits, additional excavation for PAHs, and the pistol range berm. Excavation will generally be conducted up to one-foot deep resulting in an estimate of approximately 12,000 cubic yards of soil.

Initial particle screening will be performed by a specialized company who will mechanically screen soil excavated from the surface to 0.3 feet below grade in the entire skeet range lead shot area delineated on Figure 3 and from the pistol range berm to remove fragments of lead shot, bullets, and clay pigeons. Some areas, indicated on Figure 3, may require screening of deeper soils. If additional areas outside the shot area delineation are observed during remediation to have significant visible shot, they will be excavated and screened as approved by the County. The mechanical screening process typically separates the lead from clay pigeon fragments and soil. After the physical screening and removal of the fragment lead, the soil and pigeon fragments would be stockpiled for toxicity characteristic leaching procedure (TCLP) characterization and, if determined necessary based on characterization results, onsite pre-treatment. Lead fragments will be collected

and sent to a recycler. Excavation will then be performed within the lead shot area of the skeet range from 0.3 feet to a total depth of 1 foot below original grade and from the surface to 1-foot deep within the respective cleanup areas of both the skeet and pistol ranges. Care will be taken to segregate and stockpile soils between the screened soil and the deeper and/or less affected soils.

Mechanically screened soils may require pre-treatment to lower the TCLP lead concentrations to below federal (RCRA) hazardous waste criteria and subsequent Class I landfill disposal. If required, treatment materials will be blended at set percentages with an onsite pugmill. The treated soils will then be re-analyzed by TCLP to confirm the treatment resulted in lead concentrations below RCRA hazardous waste criteria.

If RCRA hazardous levels are encountered in the non-screened soils (which is not anticipated based on previous results), the stockpile will be pre-treated to lower the concentrations below RCRA levels in the same manner as the screened soils. The stockpiles found to be Cal-haz will be disposed at a Class I landfill, such as the Kettleman Hills or Buttonwillow facilities. If stockpile analytical results indicate the sample is non-hazardous, the material is anticipated to be disposed at the local Recology - Ostrom Road Class II landfill in Yuba County.

5.2 Confirmation Sampling

5.2.1 Stockpile Sampling

Stockpiles will be sampled using a composite method where several samples from different locations in the pile are combined to form a single sample to be analyzed by the laboratory. This process reduces the likelihood of sampling error resulting in overestimating the average pile concentration. The number of samples used (subsamples) to make the composite sample will be selected such that exceedances of the site cleanup goal are not missed. For example, if a 4-part composite sample is used for lead at the residential concentration of 80 mg/kg a composite sample result exceeding 20 mg/kg may require that the discrete subsamples be analyzed as a confirmation check so that exceedances can be managed appropriately. One 4-part composite sample will be collected every approximate 500 cubic yards. It is recognized that the accepting landfill(s) may have varying requirements for acceptance of the material and will be conducted in addition to what is described in this RAP.

Stockpiled soils may be analyzed by TCLP, STLC, and/or TTLC as described below. PAHs are not included in the TCLP or STLC requirements for hazardous waste classification. However, PAHs will be analyzed for profiling for the accepting landfill.

The screened stockpiled soils will be analyzed by TCLP to determine if pretreatment is necessary and for PAHs for profiling for the accepting landfill. The screened soils that are treated will be re-analyzed by TCLP to confirm the treatment resulted in concentrations below RCRA hazardous waste criteria and for PAHs for profiling for the accepting landfill.

The stockpiles of non-screened material will be sampled and analyzed for TTLC and STLC of lead to assess whether the material classifies as California hazardous (Cal-haz) or non-hazardous. Every third composite sample of non-screened soil will also be analyzed by TCLP to confirm the material is RCRA non-hazardous and for PAHs for profiling for the accepting landfill.

5.2.2 In-place Sampling

Confirmation screening for lead of the excavation sidewalls and bottom will be performed with a hand-held X-ray fluorescence (XRF) instrument to help identify areas needing additional excavation. An XRF instrument measures the concentration of an element in soil in the field. Confirmation soil sampling for laboratory analysis will also be performed on a 50-foot grid along the bottom of the excavation and every 100 linear feet of excavation wall. Samples will be analyzed for total lead and PAHs by EPA method 6010 and

EPA Method 8310 or 8270C, respectively, or other appropriate methods. Following receipt of analytical results, additional soil excavation may be required to remove areas exceeding the residential ESL concentrations. Confirmation samples will be collected at the new excavation extent.

5.3 Loading, Transportation, & Disposal

The excavated soil will be managed, transported, and disposed of in accordance with federal, state, and local regulations. After characterization of the stockpiles, soil will be loaded into trucks for transportation to the appropriate landfill. The trucks will be covered to contain dust during transport. A waste manifest will accompany each truck load for receipt at the landfill.

5.4 Dust Control & Stormwater Pollution Prevention

The Contractor shall not discharge smoke, dust, or any other air contaminants into the atmosphere in such quantity as will violate the regulations of any legally constituted authority. The Contractor shall comply with all applicable standards, orders, or regulations issued pursuant to the Clean Air Acts of 1970 and Cal-OSHA.

Provost & Pritchard will prepare a site specific air monitoring plan following the 2020 DTSC *Community Air Monitoring Plan Guidance* to be include with bid specifications. The Contractor (and subcontractors) will be responsible for conducting air quality monitoring for their employees to provide real-time warning of excessive exposure to dust that contains lead or PAHs. The Contractor shall furnish, install, maintain, and operate dust control measures including, but not limited to, water application, manual street sweeping and wheel washers.

A stormwater pollution prevention (SWPP) plan will be prepared and implemented by the Contractor. Storm water pollution prevention (SWPP) will be accomplished by following BMPs published by the California Stormwater Quality Association.

6 Documentation & Oversight

Provost & Pritchard, as the Consultant, will oversee Contractor activities at the site. Provost & Pritchard will document daily activities and manage waste manifests. Provost & Pritchard will conduct confirmation sampling as described above. Provost & Pritchard will record dust monitoring levels during soil excavation, truck loading, and other operations that may produce dust.

7 Reporting

A final draft of this RAP will be issued after County approval and RWQCB comments are received.

A Remedial Action Completion Report will be prepared summarizing remedial activities at the site. The report is anticipated to include:

- Description of excavation, screening, & treatment;
- Description of transportation & disposal;
- Description of dust control and monitoring activities;
- Results of confirmation sampling and additional excavation, if necessary;
- Description of deviations from this work plan;
- Map showing final limits of excavation and confirmation sampling locations;
- Copies of confirmation sampling laboratory reports;

- Copies of daily field records, waste manifests, and/or weight tickets; and
- Copy of the signed HASP.

8 Limitations

Provost & Pritchard's professional services were performed consistent with generally accepted environmental practices in California at the time the services were performed. Judgments leading to conclusions and recommendations are made without a complete knowledge of subsurface conditions. No assessment can eliminate uncertainty regarding the potential environmental conditions.

In developing this plan Provost & Pritchard has relied on information that was prepared or provided by others. We have assumed that this information is accurate and correct, unless noted. Provost & Pritchard did not independently verify the data provided, as this effort is beyond the scope of our services. Changes in existing conditions at the site due to time lapse, natural causes, or operations on adjoining properties, may deem the conclusions and recommendations inappropriate.

No guarantee or warranty, expressed or implied, is made.

Figures

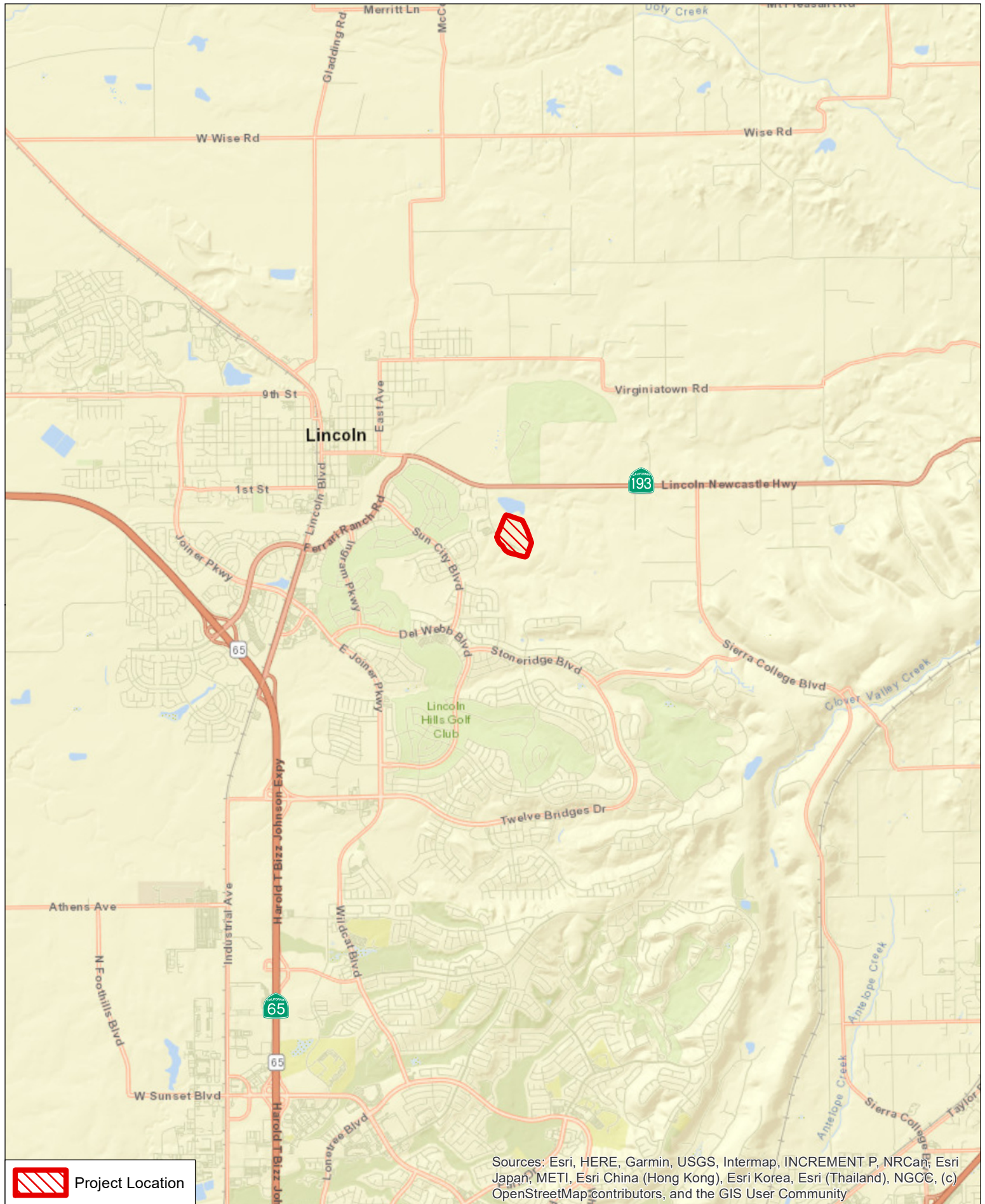


Figure 1 - Vicinity Map

Placer County Gun Range, Lincoln, CA

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PRITCHARD**

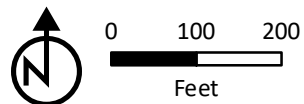
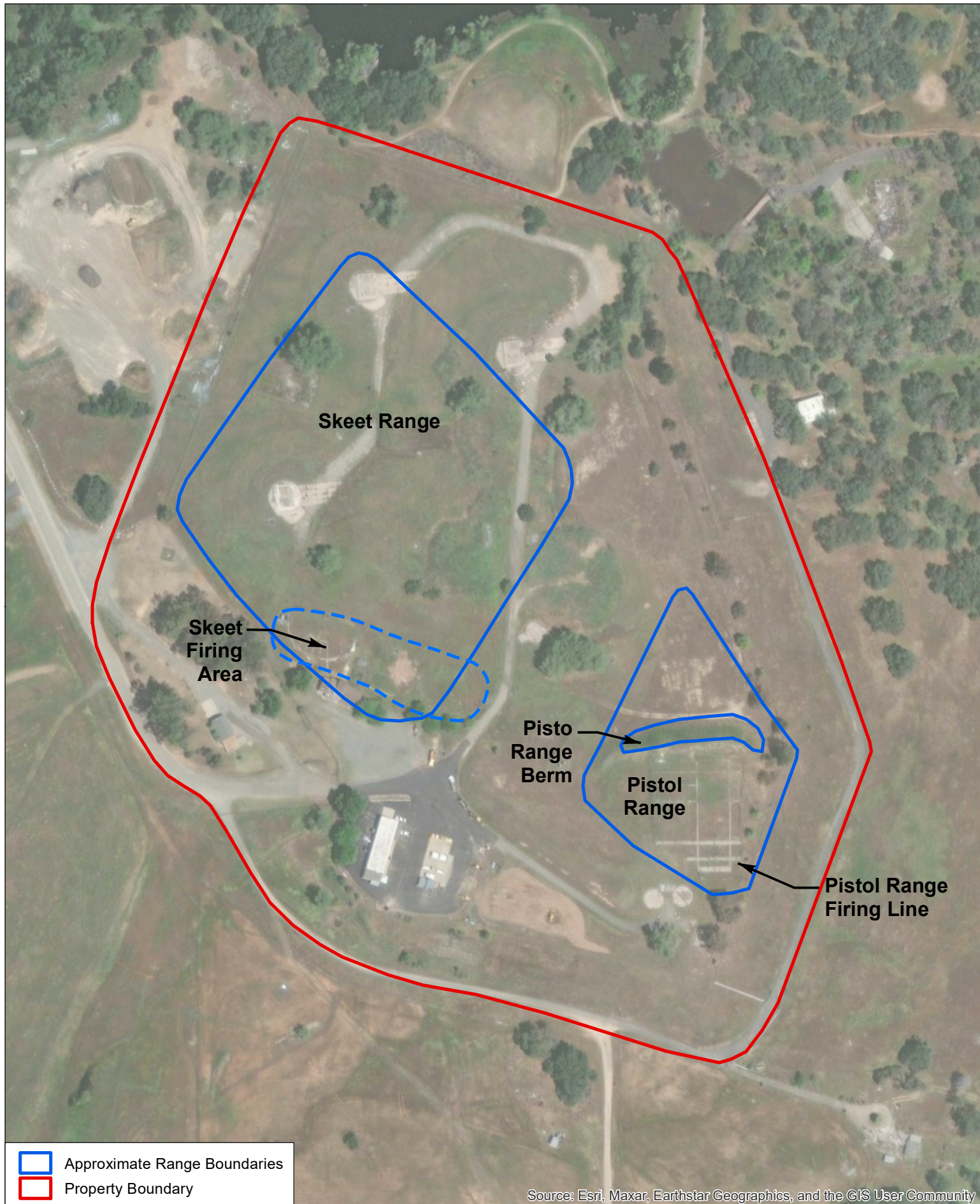
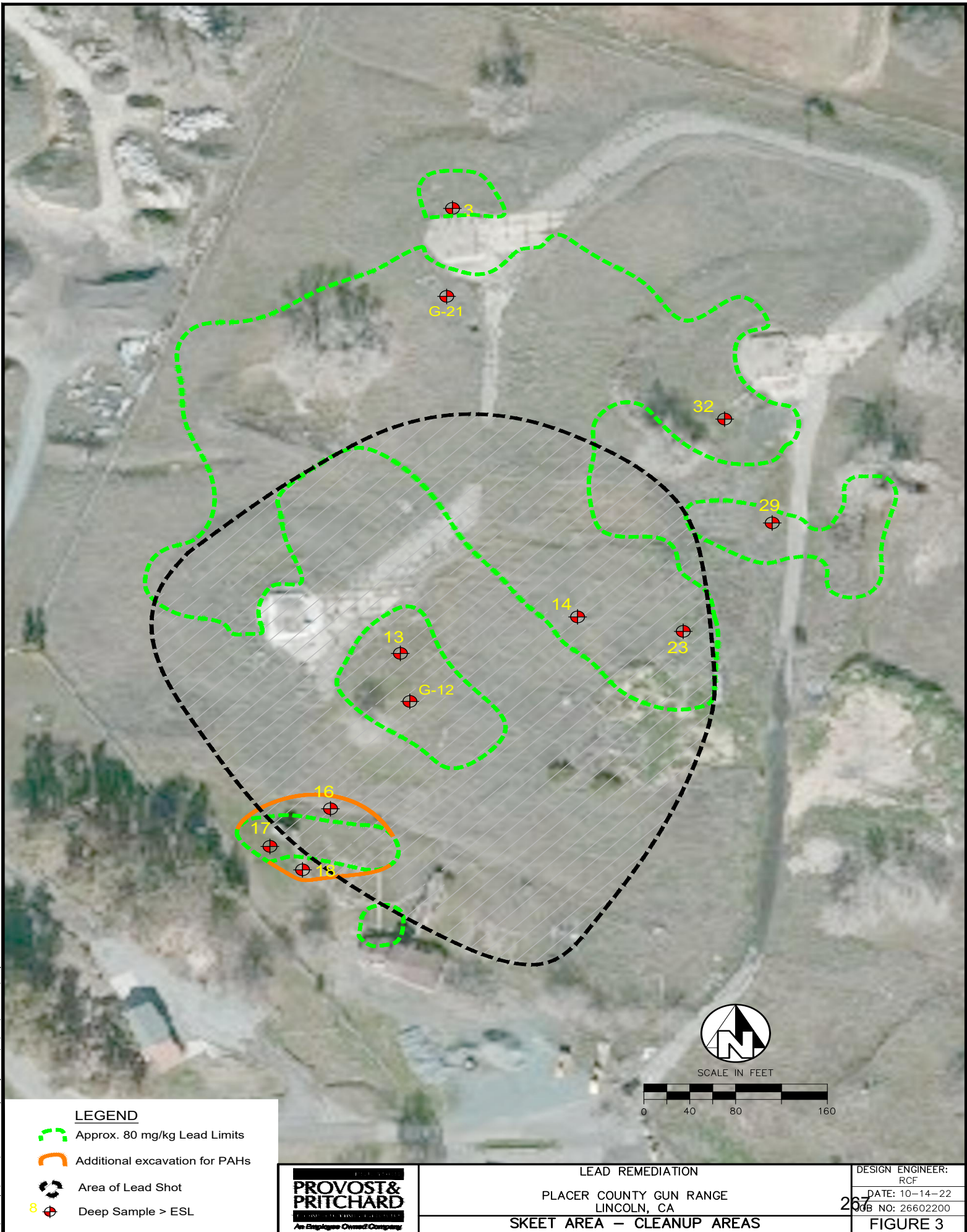






Figure 2 - Site Plan
Placer County Gun Range, Lincoln, CA

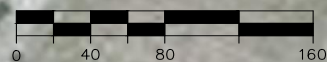


LEGEND

-  Approx. 80 mg/kg Lead Limits
-  Additional excavation for PAHs
-  Area of Lead Shot
-  Deep Sample > ESL



SCALE IN FEET



LEAD REMEDIATION

PLACER COUNTY GUN RANGE
LINCOLN, CA

SKEET AREA - CLEANUP AREAS

DESIGN ENGINEER:
RCF

DATE: 10-14-22
JOB NO: 26602200

FIGURE 3

